



# **MAHAVITARAN**

**Maharashtra State Electricity Distribution Co. Ltd.**

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**TECHNICAL SPECIFICATION FOR G. I. WIRE (SIZE 3.15/ 4/ 5mm dia.)**

**SPEC NO. MSEDCL/DIST/MS-C-III/G.I.WIRE/10/2010 A/R0**

**(BASED ON OLD SPEC NO. RE/ II / G.I. WIRE/ 2005)**

**&**

**TECHNICAL SPECIFICATION FOR G. I. STAY WIRE**

**SPEC NO. MSEDCL/DIST/MS-C-III/STAY WIRE/10/2010 B/R0**

**(BASED ON OLD SPEC NO. RE/ II / STAY WIRE/ 2005)**

MAHARASHTRA STATE ELECTRICITY DISTRIBUTION CO.LTD.

TECHNICAL SPECIFICATION FOR G. I. WIRE (3.15/ 4/ 5mm dia.)  
(SPEC No. Dist/MSCI/III/G.I.WIRE/10/2010 A/R0)

AND

TECHNICAL SPECIFICATION FOR G.I. STAY WIRE  
(SPEC. No. Dist/MSCI/III/STAY WIRE/10/2010 B/R0)

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**SCHEDULE 'A' ( PART - I)**

**TECHNICAL SPECIFICATION FOR G. I. WIRE ( 3.15/ 4/ 5mm dia.)**  
**(Spec No. Dist/MSCI/III/G.I.WIRE/10/2010 A/R0)**

**1.0 SCOPE:**

This specification covers details of solid G.I. wires for use in Rural Distribution System.

**2.0 APPLICABLE STANDARDS:**

Except when they conflict with the specific requirements of this specification, the G.I. wires shall comply with the provision of IS: 280-1978 and IS: 7887-1975 or the latest version thereof.

**3.0 APPLICATION AND SIZES:**

G.I. wires covered in this specification are intended for the following applications.

Sr. No.	Application	Sizes (Nominal dia. )
1.	Bearer wire for service cables.	3.15mm (for single-phase Service)
2.	Continuous earth wire for 11KV lines.	4mm
3.	Earthing of transformers poles & fittings.	4mm
4.	Protection guarding at the crossing of overhead power lines with roads, railway tracks and telecommunication lines.	3.15, 4 & 5mm

**4.0 MATERIAL:**

4.1 The wires shall be drawn from the wire rods conforming to IS: 7887- 1975 or the latest version thereof.

4.2 The requirements for chemical composition for the wires shall conform to IS:7887-1975 or the latest version thereof.

4.3 The wires shall be sound, free from split surface flaws, rough jagged and imperfect edges and other detrimental defects on the surface of the wires.

4.4 Material to be supplied shall bear ISI certification mark.

**5.0 GALVANIZING:**

The wires shall be galvanized with 'heavy coating ' as per IS:4826-1979 or the latest version thereof.

#### 6.0 **GRADES:**

G.I wires shall be conforming to the grade shown below:

Grade	Tensile strength ( MPa )
Hard Galvanised	550-900

#### 7.0 **TOLERANCE IN DIAMETER:**

The tolerance on nominal diameter at any section of the wire shall not exceed  $\pm 2.5\%$ . Further the maximum difference between the diameters at any two cross sections of wires shall not exceed 2.5%.

#### 8.0 **TESTS:**

The following tests shall be carried out in accordance with IS: 280/1978 or the latest version thereof, as per sampling criteria stipulated therein.

- i) Dimensional Check (dia) – refer Clause 7 above.
- ii) Visual Inspection regarding freedom from defects- refer Clause 4.3 above.
- iii) Tensile Test.
- iv) Wrapping Test (for wire diameters smaller than 5mm).
- v) Bend Test ( for wire diameter of 5mm. only )
- vi) Coating Test – refer Clause 5 above.
- vii) Chemical Composition.

#### 9.0 **PACKING:**

The wires shall be supplied in 30- 40 kg. Coils, each coil having single continuous length. Each coil of wire shall be suitably bound and fastened compactly and shall be protected by suitable wrapping.

#### 10.0 **MARKING:**

Each coil shall be provided with a label fixed firmly on the inner part of the coil bearing the following information:

- (a) Manufacturer's name or trade mark.
- (b) Lot number and coil number.
- (c) Size.
- (d) Grade ( Annealed )
- (e) Mass.
- (f) Length.
- (g) ISI Certification Mark.

#### 11.0 **SPECIFIC TECHNICAL PARTICULARS:**

These shall be as per Annexure H-I.

ANNEXURE – ‘H-I’

SPECIFIC TECHNICAL PARTICULARS FOR G.I. WIRES

Sr. No.	Parameters	Parameter Values		
1	Size of wire	3.15mm	4.00mm	5.00mm
2	Tolerance of size	As per Clause 7 of the specification.		
3	Tensile Strength	550-900 MPa		
4	I.S. Specification	IS-280/1978, IS-7887/ 1975, IS-4826/1979 or the latest version thereof.		
5	Coating ( gms ) / m <sup>2</sup>	270	290	290
6	Type of galvanizing	Hot dip heavy coating		
7	ISS for Zinc Coating	IS-4826/ 1979 or the latest version thereof		
8	No. of dips	3 dips of 1 min. and 1 dip of 1/2 min.		
9	Packing	30 to 40 kgs. in coils as per Clause 9 of the specification Schedule ‘A’( Part- I )		
10	Chemical composition	As per IS-7887/ 1975 - Carbon 0.23% max., Sulphur 0.55% max., Phosphorus 0.055% max.		

**SCHEDULE 'A' (PART-II)**

**TECHNICAL SPECIFICATION FOR G. I. STAY WIRE**  
**(Spec No. Dist/MSCI/III/STAY WIRE/10/2010 B/R0)**

**1. G.I. STAY WIRE:**

Wire conforming to IS 2141/1979 or the latest version and having tensile strength 45-55 kg. sq. mm. The wires should be heavily coated with zinc as per IS 4826/ 1979 or the latest version thereof by Hot Dip Galvanization and of sizes shown below.

- i) 7/4.0 mm
- ii) 7/3.15 mm

**2. PACKING:**

The wires shall be supplied in 30-40 Kg. per coil. The packing should be done in accordance with the provision of IS 6594/1977 or the latest version thereof. However, the wire shall be supplied in coils (and not on reels). Each coil shall be suitably bound and fastened compactly and shall be protected by suitable wrapping.

**3. SPECIFIC TECHNICAL PARTICULARS:**

These shall be as per the attached Annexure H-II.

**4. TESTING:**

All the tests specified in the above IS specification are required to be conducted as detailed therein. Tenderer must clearly indicate what testing facilities are available at the works of the manufacturer and whether the facilities are adequate to carry out all the tests mentioned above. These facilities should be available to Company's Engineer if deputed to carry out / witness these tests in the manufacturer's works. If any of the tests cannot be carried out in the manufacturer's works, the reasons should be clearly stated.

**5. Documents to be submitted on-line**

1) If any test as per clause No.4 of Schedule 'A' (Part-II) cannot be carried out at the manufactures' works, reasons should be clearly stated.

2) Schedule 'C' (Tenderers' experience)

3) Full copy of BIS certificate.

**ANNEXURE 'H-II'**

**SPECIFIC TECHNICAL PARTICULARS FOR G.I. STAY WIRE**

Sr. No.	Parameters	7/3.15 mm	7/4.00 mm
1.	Size of individual wire	3.15 mm	4.00 mm
2.	No. of strands	7	7
3.	Lay length	12 to 18 times strand diameter	12 to 18 times strand diameter
4.	Tolerance of dia of individual wire.	$\pm 2.5\%$	$\pm 2.5\%$
5.	Minimum tensile strength of individual wire.	45 Kg./sq. mm	45 Kg./sq. mm
6.	Minimum breaking load of individual strand	350 kg.	565 kg.
7.	Minimum breaking load of completed stay wire.	2331 kg.	3758 kg.
8.	Specification to which the stay wire will conform	IS 2141/ 1979 or the latest version thereof	IS 2141/ 1979 or the latest version thereof
9.	Type of zinc coating	Heavy coating.	Heavy coating.
10.	Method of coating	Hot Dip Galvanizing.	Hot Dip Galvanizing.
11.	Specification for galvanizing	IS 4826/ 1979 or the latest version thereof	IS 4826/ 1979 or the latest version thereof
12.	Packing	As per Clause 2 of Schedule 'A' Part – II ) in coils weighing between 30 kg to 40 kg	As per Clause 2 of Schedule 'A' (Part – II ) in coils weighing between 30 kg to 40 kg
13.	Chemical composition	Sulphur & Phosphorous less than 0.06%.	Sulphur & Phosphorous less than 0.06%.

**SCHEDULE 'C'**

**SCHEDULE OF TENDERER'S EXPERIENCE**

Tenderer shall furnish here a list of similar orders executed under execution by him during the last five years and name/s and address/es of person/s to whom a reference may be made by purchaser in case he consider such a reference necessary.

Sr. No.	Name and description of order	Value of order	Period of supply & commissioning	Name and address of person to whom reference may be made
1	2	3	4	5

Name of the firm\_\_\_\_\_

Signature of tenderer\_\_\_\_\_

Designation\_\_\_\_\_

Date:-\_\_\_\_\_